

Appl. No. 10/790,394
Response to Office Action mailed August 8, 2007

Atty Dkt. No. 114951-006

REMARKS

The non-final Office Action was issued on pending claims 1-15, 24 and 26-28, of which claims 1, 2, 6, 8, 9, 13, 24 and 26-28 are under consideration and claims 3-5, 7, 10-12 and 14-15 are withdrawn from consideration. Claims 1, 2, 6, 8, 9, 13, 24 and 26-28 stand rejected. In this Response, claims 1, 8, 24, 27 and 28 have been amended, claims 29-37 have been added and no claims have been cancelled. Thus, claims 1-15, 24 and 26-37 are pending in the application and claims 1, 2, 6, 8, 9, 13, 24 and 26-37 are under consideration.

Applicants thank the Examiner for the courteous personal interview on October 12, 2007. A copy of the Interview Summary given to Applicants' Representative at the personal interview is enclosed. Applicants also thank the Examiner for making the Office Action non-final.

Applicants invite the Examiner to call Applicants' Representative to discuss any issues with this Response.

Claim Rejections – 35 USC §112

In the Office Action at page 2, claims 1, 6-9, 13, 24 and 26-28 were rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement. The Office Action asserts the application as originally filed does not provide antecedent basis for a heat shrunken elongation member that is inelastic. Applicants respectfully disagree.

Applicants reiterate the comments discussed during the personal interview with the Examiner. Initially, Applicants reiterate that the term "inelastic" is known in the art as meaning non-elastic or non-recoverable after stretching. In other words, if an inelastic material is stretched from a relatively shorter length to a relatively longer length, the inelastic material does not return to its unstretched length after the stretching force is removed. The inelastic material retains a length after stretching that is longer than the original unstretched length. Conversely, an elastic material that is stretched returns (recovers) to its unstretched length after the stretching force is removed.

Safety lanyards are known in the industry as having inelastic (non-recoverable) stretchable members. Safety lanyards are not bungee cords. Bungee cords have elastic

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(recoverable) stretchable members to provide bouncing action to the user. Conversely, safety lanyards are designed to safely stop a falling person and do not have elastic (recoverable) stretchable members. Safety lanyards do not provide a bungee cord like bouncing action because such bouncing action could cause injury to the user of the safety lanyard and is contrary to the purpose of the lanyards.

Furthermore, safety lanyards are intended to be a single use safety device. Safety lanyards should not be reused after they have been activated or stretched to stop a falling person. A safety lanyard used a second time after the lanyard has already stopped a person's fall may not properly function during the second use. Accordingly, safety lanyards have inelastic (non-recoverable) stretchable members that are not reusable rather than elastic (recoverable) stretchable members that could be reused.

Even further, one example of Applicants' heat shrunken elongation member is partially orientated yarns (POY yarns) as disclosed in the specification as originally filed. See the specification at page 9, lines 15-26, for example. One inherent property of POY yarns is POY yarns are substantially inelastic after heat treatment.

Applicants also kindly refer the Examiner to pages 6 and 7 of the Response to Office Action dated February 13, 2007 which contains remarks that the application as originally filed supports the heat shrunken elongation member/yarns as being elongatable and substantially inelastic.

Therefore, Applicants respectfully submit that the application as originally filed provides proper support and antecedent basis for a heat shrunken elongation member that is inelastic. Thus, Applicants submit the §112, first paragraph, rejections should be withdrawn.

Claim Rejections – 35 USC §103

In the Office Action at pages 2 and 3, claims 1, 6, 8, 13, 24 and 26-28 were rejected under 35 U.S.C. §103(a) as being unpatentable over either Boyer (US 6,390,234) or O'Dell (US 6,533,066) in view of either Kavesh et al. (US 4,897,902) or Takada (US 3,872,895). At page 2 and 3 of the Office Action, claims 2 and 9 were rejected under 35 U.S.C. §103(a) as being

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unpatentable over either Boyer or O'Dell and either Kavesh et al. or Takada and further in view of Piper (US 4,746,769), Chang et al. (US 6,238,167) or Silverberg (US 6,085,802). Applicants respectfully disagree.

During the personal interview, structural differences between Applicants' invention and the prior art were discussed. Applicants reiterate those structural differences in this Response.

Claim 1 has been amended to clarify the claim. Claim 1 pertains to a lanyard, and calls for "a load-supporting outer sheath; a heat shrunken substantially inelastic elongation member extending along an inside of the outer sheath."

Claim 1 has been amended to also recite "first and second hardware attachment portions at opposite ends of the load-supporting outer sheath." This amendment to claim 1 is supported by the application as originally filed. For example, Fig. 5 shows a shock absorbing lanyard 36 having hardware attachment portions D, D at opposite ends of the load-supporting outer sheath. The specification at page 12, lines 6-14, describes the hardware attachment portions D, D. See also Fig. 4 which shows the left-hand portion of a shock absorbing lanyard having a hardware attachment portion D. The specification at page 11, line 15 – page 12, line 5 describes the hardware attachment portion D. The right-hand side of the shock absorbing lanyard shown in Fig. 4 would also have a hardware attachment portion D.

As discussed during the personal interview with the Examiner, the lanyard of the present invention has a significantly different structure for the attachment of the heat shrunken elongation member to the load-supporting outer sheath compared to the prior art. Claim 1 has been amended to clarify the structure of the attachment of the heat shrunken inelastic elongation member and the load-supporting outer sheath. Amended claim 1 now recites "wherein the load-supporting outer sheath and the heat shrunken substantially inelastic elongation member are secured together at a plurality of locations along substantially an entire length of the elongation member." (Emphasis supplied). This amendment to claim 1 is supported by the application as originally filed. Fig. 5 shows a shock absorbing lanyard 36 having a plurality of segments A. The segments A are binder portions which secure the inelastic elongation member 12 and the outer sheath 14 together. See the specification at page 12, lines 6-9 (referring to Fig. 5) and page 10, line 29 – page 11, line 4 (referring to segment A in Fig. 4). Segment C is a securing portion which also secures the inelastic elongation member 12 and the outer sheath 14 together. See the

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specification at page 12, lines 6-9 (referring to Fig. 5) and page 11, lines 20-27 (referring to segment C in Fig. 4). As clearly shown in Fig. 5, the segments A, alone or together with segments C, show an example of the claimed structure of "the load-supporting outer sheath and the heat shrunken substantially inelastic elongation member are secured together at a plurality of locations along substantially an entire length of the elongation member." (Emphasis supplied).

Turning to the cited references, Boyer and O'Dell simply do not have Applicants' claimed structure of the load-supporting outer sheath and the heat shrunken substantially inelastic elongation member are secured together at a plurality of locations along substantially an entire length of the elongation member. As to Boyer, Boyer pertains to a shock absorbing safety harness and shows in Fig. 5 a shock absorbing band 40. The shock absorbing band 40 has a non-stretchable tubular sleeve 42 and a non-resilient stretchable insert 44. See Boyer at column 3, lines 20-30. Boyer does not describe or illustrate the structure of the connection of the sleeve 42 and the stretchable insert 44. Nowhere does Boyer describe, show or suggest the sleeve 42 and the stretchable insert 44 be secured together at a plurality of locations along substantially an entire length of the stretchable insert 44 (elongation member). Indeed industry practice has been to secure the tubular sleeve and the insert (elongation member) only at opposite ends of the stretchable insert.

As to O'Dell, O'Dell shows in Figs. 2-5 a shock absorbing lanyard 20 having a sheath 22 surrounding a core 24. The sheath 22 and the core 24 are secured together only at opposite ends 26, 38. Referring to Fig. 5 of O'Dell, the majority of the length of the lanyard 20 is a tubular weave section 32 in which the core 24 and the sheath 22 are distinct from each other, i.e., not secured together. See O'Dell at column 4, lines 5-22. Nowhere does O'Dell describe, show or suggest the sheath 22 and the core 24 be secured together at a plurality of locations along substantially an entire length of the core 24 (elongation member). Indeed O'Dell follows the industry practice of securing the tubular sheath and the core (elongation member) only at opposite ends of the core. O'Dell does provide rip stitches 40. However, the rip stitches 40 secure the overlapping sheath 42 (the sheath 22 folded back on itself) to itself. See O'Dell at column 4, lines 19-22. The rip stitches do not secure the core 24 and the sheath 22 together along substantially an entire length of the core 24.

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As to Kavesh et al. and Takada, those references do not remedy the deficiencies of Boyer and O'Dell. Kavesh et al. and Takada were cited in the Office Action for heat-shrunken elongation members. However, Kavesh et al. and Takada merely describe certain materials that are heat shrunk or heat set when subjected to heat treatment. Kavesh et al. and Takada do not show, describe or suggest the structure of Applicants' invention as claimed.

As discussed during the personal interview, Applicants' claimed invention can provide significant advantages. For example, Applicants' invention having the heat shrunken inelastic elongation member and the load-supporting outer sheath connected together along the entire length of the elongation member allows the automatic adjustment of the relative lengths of the elongation member (energy-absorbing member) and outer sheath (strength member) by heat treatment. Conversely, conventional safety lanyards have required manual adjustment of the relative lengths of the elongation member (energy-absorbing member) and outer sheath (strength member). Furthermore, embodiments of Applicants' invention are woven as a true one-piece webbing with the elongation member (energy-absorbing member) and outer sheath (POY strength member) woven and bound together at the same time from one end to the opposite end. Conversely, conventional safety lanyards have required manual attachment of the elongation member (energy-absorbing member) and outer sheath (strength member) at least at one end of the lanyard. Turning to Boyer, Boyer appears to insert the stretchable insert 44 into the tubular sleeve 42 and does not sew the insert and sleeve together until after manually adjusting their relative lengths. Therefore, heat treatment of the Boyer stretchable insert 44 before making the sewn connection to the tubular sleeve 42 would result in a lanyard that is not functional for its intended purpose. Similarly, heat treatment of the Boyer stretchable insert 44 after making the sewn connection would also result in a lanyard that is not functional for its intended purpose. Turning to O'Dell, O'Dell purports to be a one-piece webbing; however, the O'Dell core 24 and sheath 22 are only woven connected together at one end of the lanyard 20. The core 24 and sheath 22 are not woven connected together along the length of the lanyard 20 or at the opposite end. O'Dell requires manual adjustment of the relative lengths of the core 24 and the sheath 22. Heat treatment of the O'Dell lanyard would also result in a lanyard that is not functional for its intended purpose, similar to Boyer.

As to independent claim 8, claim 8 has been amended similarly as claim 1 and recites "a plurality of spaced apart binder locations in which the heat-shrunk elongation yarns are secured

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to the tubular-shaped webbing along substantially an entire length of the heat-shrunk elongation yarns." Accordingly, claim 8 is distinguished from Boyer or O'Dell in view of Kavesh et al. or Takada for the same reasons claim 1 is distinguished from those references.

Claims 24, 27 and 28 have been amended to be consistent with amended claims 1 and 8.

Therefore, independent claims 1 and 8 are allowable. The dependent claims are allowable at least for the same reasons that their respective independent claims are allowable.

Thus, Applicants submit that §103 rejections should be withdrawn.

Objective Evidence of nonobviousness

The Office Action at page 4 indicates that the Russell Declaration submitted with the Response to Office Action dated July 25, 2007 has not been considered. During the personal interview Applicants kindly requested the Russell Declaration be fully considered. The Russell Declaration contains objective evidence of nonobviousness traverse to the §103 rejections. Applicants kindly note that the Russell Declaration must be considered as required by M.P.E.P §716.01(B).

The Russell Declaration establishes the following objective evidence of nonobviousness of the invention as claimed in claims 1 and 8.

1. The shock absorbing lanyards exhibit unexpected results. See the Russell Declaration at paragraphs 6-8.
2. The shock absorbing lanyards have experienced remarkable commercial success during a short time period. See the Russell Declaration at paragraphs 9-16.
3. There has been long-felt, unresolved needs for improved safety lanyards in the fall protection industry. See the Russell Declaration at paragraphs 17-21.
4. The shock absorbing lanyards having a heat shrunken inelastic elongation member was initially met with skepticism by an expert in the industry. See the Russell Declaration at paragraphs 22-24.

In view of the Russell Declaration Applicants submit all of the claims are not obvious considering either Boyer or O'Dell in view of either Kavesh et al. or Takada. All of the claims

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are also not obvious considering either Boyer or O'Dell in view of either Kavesh et al. or Takada and further in view of Piper, Chang et al. or Silverberg. Thus, Applicants submit that §103 rejections should be withdrawn.

New Claims 29-37

New claims 29-37 have been added and are supported by the application as originally filed. Claim 29 includes features that were removed from claim 1. Claims 30 and 31 are supported by Fig. 5 which shows binder portion segments A equally spaced apart from each other. See also the specification at page 12, lines 12-14. Claim 32 is similar to claim 1, but pertains to a webbing and does not include the hardware attachment portions. Claims 33-37 correspond to claims 29, 24, 2, 6 and 30, respectively.

Thus, Applicants submit claims 29-37 are also allowable.

CONCLUSION

For the foregoing reasons, Applicants submit that the patent application is in condition for allowance and request a Notice of Allowance be issued.

Respectfully submitted,

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Date: November 2, 2007

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